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TITLE : PERMANENT-MAGNET-TYPE SYNCHRONOUS MOTOR

ABSTRACT : PURPOSE: To provide a compact synchronous motor of high output, by using permanent magnets for a rotor, equalizing the number of the magnets to that ($P/2$) of the pairs of poles, rendering the direction of magnetization of the permanent magnets coincident with the radial direction of the rotor and producing image poles in the circumferential direction of the rotor.

CONSTITUTION: A layer-built rotor iron core 2 is fixed on a rotary shaft 1. Numerous conductors 3 are provided in the form of a squirrel cage in the peripheral part of the iron core 2. The permanent magnets 11, which are shaped like an arc of angle equal to the quotient of division of the total central angle by the pole number P , and provided in the central part of the iron core 2. The number of the permanent magnets is equal to that ($P/2$ which is 3 because $P=6$ in the case shown in Fig.) of the pairs of the poles. The direction of magnetization of the magnets is rendered coincident with the radial direction of the iron core. The magnets have their N- poles on the outside and their S-poles on the inside. Slits 12 are provided between the poles of the iron core 2. The width of the iron core part 13 inside the magnets 11 is so set that the part 13 is not magnetically saturated when a half of flux of the magnet passes through the part.

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